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Ag Rept 7

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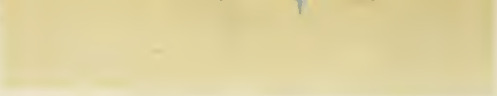
THE
DEPARTMENT OF AGRICULTURE:
ITS HISTORY AND OBJECTS.

BY

JAMES M. SWANK,
CHIEF CLERK OF THE DEPARTMENT.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1872.



OFFICERS OF THE DEPARTMENT, JUNE 1, 1872.

COMMISSIONER,

FREDERICK WATTS, Pennsylvania.

CHIEF CLERK,

JAMES M. SWANK, Pennsylvania.

STATISTICIAN.

J. R. DODGE, Ohio.

SUPERINTENDENT OF GARDENS,

WILLIAM SAUNDERS, Pennsylvania.

ENTOMOLOGIST,

TOWNEND GLOVER, Maryland.

CHEMIST.

RYLAND T. BROWN, Indiana.

DISBURSING CLERK,

B. F. FULLER, Illinois.

BOTANIST.

GEORGE VASEY, Illinois.

LIBRARIAN.

J. B. RUSSELL, Kentucky.

SUPERINTENDENT OF SEED-ROOM.

ANDREW GLASS, District of Columbia.

COMMISSIONERS AND ACTING COMMISSIONERS OF PATENTS.

[From 1836, in which year the Patent Office was reorganized, to 1862, when the Department of Agriculture was established.]

Commissioner, HENRY L. ELLSWORTH, appointed July 4, 1836; resigned April 30, 1845.

Commissioner, EDMUND BURKE, appointed May 4, 1845; resigned April 30, 1849.

Commissioner, THOMAS EWBANK, appointed May 19, 1849; superseded by S. H. HODGES, November 8, 1852.

Commissioner, S. H. HODGES, appointed November 8, 1852; resigned March 25, 1853.

Acting Commissioner, R. C. WEIGHTMAN, from March 25 to May 15, 1853.

Commissioner, CHARLES MASON, appointed May 16, 1853; resigned August 4, 1857.

Acting Commissioner, SAMUEL T. SHUGERT, from March 5, 1857, to September 9, 1857. sic aug?

Commissioner, JOSEPH HOLT, appointed September 10, 1857; resigned March 14, 1859.

Acting Commissioner, SAMUEL T. SHUGERT, from March 15 to March 22, 1859.

Commissioner, WILLIAM D. BISHOP, appointed May 23, 1859; resigned February 15, 1860.

Commissioner, PHILIP F. THOMAS, appointed February 16, 1860; resigned December 13, 1860.

Acting Commissioner, S. T. SHUGERT, from December 14, 1860, to March 27, 1861.

Commissioner, D. P. HOLLOWAY, appointed March 28, 1861; resigned August 16, 1865.

COMMISSIONERS OF AGRICULTURE.

[From 1862 to 1872.]

Commissioner, Isaac Newton, Pennsylvania, appointed June 30, 1862; died in office, June 19, 1867.

Acting Commissioner, John W. Stokes, Pennsylvania, from June 20, 1867, to December 4, 1867.

Commissioner, Horace Capron, Illinois; appointed December 4, 1867; resigned July 31, 1871.

Commissioner, Frederick Watts, Pennsylvania; appointed August 1, 1871.

HISTORICAL SKETCH OF THE DEPARTMENT.

The census establishes the fact that one-half the population of the United States is either directly engaged in agricultural pursuits or is wholly dependent upon them for support, while no census is required to prove that the whole country is mainly indebted for its prosperity to the quiet labors of the independent farmer. Our commerce and manufactures are of vast importance, but they are of secondary interest when compared with our stake in agriculture. Unlike some of the nations of Europe that do not produce food enough to supply the necessary wants of their people, poorly as some of them are always fed, the United States annually produces more food than its people can consume or waste. We are large exporters of meats and breadstuffs and of other agricultural productions. We are distinctively and pre-eminently a nation of farmers, and such we shall undoubtedly remain. The temperate and stimulating climate of our country, the variety of soil and range of latitude and elevation, the rural tastes of our people, and the vast domain yet open to homestead occupancy, combine to assure a continuance of the interest hitherto manifested in agricultural pursuits. It is somewhat strange, therefore, in view of all these facts, that so much attention has been bestowed from the foundation of the Government upon the encouragement of commerce and manufactures, and so little upon the encouragement and improvement of agriculture; stranger still, that any professedly patriotic citizen should ever have given utterance to the sentiment that "agriculture can take care of itself." Not only has the attention of politicians and statesmen been diverted from this chief of all the industries, but farmers themselves have been slow to press their claims to more favorable recognition. It is true that Washington and the Presidents who immediately succeeded him urged the importance and propriety of placing agriculture under the direct and fostering care of the Government, and that the subject was considered by committees of both Houses of Congress during the early days of the Republic; but constitutional and other objections, and the lack of general interest in any suggestion for the improvement of agricultural methods, constantly postponed favorable legislative action.

To Hon. Henry L. Ellsworth, of Connecticut, son of Hon. Oliver Ellsworth, third Chief Justice of the United States, is the country more indebted than to any other person for the recognition by Congress of the claims of agriculture. His services date from 1836, in which year he was appointed by President Jackson the first Commissioner of Patents. The Patent Office had been just then reorganized. Owing to its subsequent intimate association with the interests of agriculture, the origin of that office requires a brief notice before reference is made to Mr. Ellsworth's administration of its duties.

The first article of the Constitution provides for promoting the progress of science and the useful arts by securing to authors and inventors the exclusive right to their respective writings and discoveries. This clause is the foundation of our laws regulating copyrights and patents. Up to 1793 the granting of letters-patent was confided by act of Congress to the Secretary of War, the Secretary of State, and the Attorney General, the records of patents being kept in the office of the Secretary of State, and all models and drawings being deposited there. On the 21st of February of that year the duty of acting upon applications for patents was assigned exclusively to the Secretary of State. The examination of these applications was performed by a single clerk in the office of the Secretary, who, in 1821, received the title of Superintendent of the Patent Office. In 1830 this office was further recognized by law, and made the subject of a special appropriation. On the 4th of July, 1836, it was made a separate Bureau of the Government, and the office of Commissioner of Patents was created. In December of the same year Blodgett's Hotel, a three-story brick building, used for Government offices, which stood where the Post Office building now stands, and fronted on E street, was burned to the ground. In one or two of the upper rooms was located the Patent Office, and its contents were entirely consumed. Afterwards, until 1840, the business of the Bureau was transacted in rooms appropriated to its use in the City Hall. In 1840 the Patent Office was removed to the building erected expressly for its accommodation and now occupied by it.

Mr. Ellsworth was Commissioner of Patents from 1836 to 1845, and one of the first subjects which engaged his attention after assuming the duties of the office was the impulse which had been given at that day to improvements in the implements of agriculture, and the "aid which agriculture might derive from the establishment of a regular system for the selection and distribution of grain and seeds of the choicest varieties for agricultural purposes." During the administration of John Quincy Adams, the consuls of the United States were instructed to forward to the State Department rare plants and seeds for distribution, and a botanical garden was established in Washington. Little was done in the collection and distribution of seeds thus authorized, but to the association of this enterprise with the Patent Office in the State Department Mr. Ellsworth was doubtless indebted for the hint of a more comprehensive system of seed distribution. In 1836 and 1837, the first two years of his incumbency, the Commissioner, without legal authorization, received and distributed many seeds and plants which had been gratuitously transmitted to him. In his first annual report, dated January 1, 1838, he called the attention of Congress to the subject, and strongly recommended that provision be made for the establishment at the National Capital of a depository of new and valuable varieties of seeds and plants, for distribution to every part of the United States. He further recommended that this depository be made a part of the Patent Office. No immediate action was taken by Congress upon the recommendations, but this neglect did not discourage the Commissioner from continuing his self-imposed task of distributing, under the frank of friendly members of Congress, improved varieties of wheat, corn, &c., the beneficial effects of which distribution were fully shown in testimonials from all parts of the country.

On the 21st of January, 1839, Hon. Isaac Fletcher, of Vermont, chairman of the Committee on Patents of the House of Representatives, addressed a letter to Commissioner Ellsworth, requesting the communication of information relative to the collection and distribution of seeds and plants; also, relative to the practicability of obtaining agricultural statistics. To this letter of inquiry the Commissioner responded on the following day, reciting the action already taken by him to further the cause of agriculture, and assigning many reasons why his previous recommendations should be adopted. In this communication the Commissioner suggested that "arrangements could be made for the exhibition of different kinds of grain, exotic and indigenous, in the new Patent Office." In the closing hours of the Twenty-fifth Congress, (act of 3d March, 1839,) the Commissioner was gratified by the passage of an appropriation of $1,000, to be taken from the Patent Office fund, for the purpose of collecting and distributing seeds, prosecuting agricultural investigations, and procuring agricultural statistics. Thus originated the agricultural division of the Patent Office.

In his annual report of the following year, dated January 1, 1840, Commissioner Ellsworth stated that the diplomatic corps of the United States had been solicited to aid in procuring valuable seeds, and that the officers of the Navy had been requested to convey to the Patent Office such seeds as might be offered. As the sixth census was then about to be taken, agricultural statistics were deferred until its completion. In the next report, (January 1, 1841,) it was stated that 30,000 packages of seeds had been distributed during the preceding year, and that the agricultural statistics, based upon the returns of the census, were being compiled. "The importance of an annual report of the state of the crops in different sections, as a preventive against monopoly, and a good criterion to calculate the state of exchange," was commended to the consideration of Congress, and from this suggestion were evolved in time the annual agricultural reports.

In the report for 1841 were given tabular estimates of the products of agriculture in the United States in that year. These estimates filled two pages, and were based upon the census returns of 1840, supplemented by such additional information as could be derived from agricultural reports, newspapers, and official correspondence with leading citizens in all parts of the country. The correspondence was mainly conducted by means of printed circulars, containing inquiries by the Commissioner. to which replies were returned on the same sheet. The same general plan of obtaining information is observed by the Department of Agriculture to-day. Fifteen pages of comment followed the tabular statement, embracing a survey of the agricultural condition and prospects of the country. Special subjects of comment were the manufacture of sugar from Indian corn, and of lard oil as a substitute for whale oil as an illuminator. In this year Congress appropriated another $1,000 from the Patent Office fund for agricultural purposes. There was no appropriation in 1840 and 1841. From 1842 to 1846 the annual appropriation from the fund was continued, but in the latter year it was again omitted. In 1847 it was revived, and afterwards annually renewed up to 1854, when the policy of appropriating money from the fund was abandoned; the whole amount ($39,000) drawn from it was reimbursed in 1855. After 1853 appropriations for agriculture were made every year directly from the Treasury. In no one year, up to 1854, did the annual appropriation exceed $5,500, and it was generally below that sum.

In his report for 1842 the Commissioner recommended "the constitution of an agricultural bureau, or at least an agricultural clerkship, at a moderate expense." He further recommended "a sufficient appropriation to allow a personal examination of the various parts of the country, by some one well qualified for such duty." Accompanying the report was an elaborate essay by the Commissioner, sixty pages in length, on the condition and prospects of American agriculture; also, a tabular estimate of the crops of 1842, occupying two pages, the data for which were obtained from the sources previously relied upon. The preparation of the table was stated to have been "no easy task." Several communications from farmers and others, on practical questions relating to agriculture, were printed in an appendix, and some of them were illustrated by cuts. From them may be dated the practice of publishing details of individual experience and elaborate essays in the annual agricultural reports.

The report for 1843 was still more voluminous than that for 1842. The tabular estimates, letters from correspondents, and remarks by the Commissioner were continued. The statement was made that the labor of the Commissioner in compiling agricultural information was chiefly performed out of office hours. The remarks on the condition of the crops and the growth of agriculture challenge admiration by their comprehensiveness, (120 pages,) their minuteness of detail, and the thorough acquaintance with the agricultural resources of the country manifested by the writer. A more extended system of investigation was recommended. The distribution of foreign seeds had been continued during the year, and 12,000 packages would be distributed during the following year.

The report for 1844 showed increased industry and enthusiasm by the Commissioner. It was more voluminous than any preceding report. The potato rot, which began in 1843, the ravages of the Hessian fly and other insects, and the various diseases to which wheat and other grains are subject were referred to at length in the general review and in the papers contained in the appendix, and remedies were suggested. Some of the most valuable papers in the appendix were reproduced from the agricultural and news journals of the day.

On the 30th of April, 1845, Mr. Ellsworth resigned the office of Commissioner of Patents. The facts in his official career have been given in some detail, because he was really the founder of that branch of the Government now embraced in the Department of Agriculture, and as such entitled to honorable mention in these pages, and because the first successful steps in the work of securing Government recognition of agriculture deserve to be recorded. The patience, enthusiasm, and industry of Mr. Ellsworth in this work entitle his name to the grateful remembrance of American farmers. The following additional incidents in his life are derived from authentic sources:

Henry L. Ellsworth was born at Windsor, Connecticut, in the year 1790. He was the twin brother of Hon. William W. Ellsworth, late chief justice of Connecticut, now deceased. His father was Hon. Oliver Ellsworth, third Chief Justice of the United States, and his mother was Abigail Wolcott, a relative of Oliver Wolcott, a signer of the Declaration of Independence. Mr. Ellsworth was a graduate of Yale College, in the class of 1810; was a class-mate of Professor Morse, and perhaps did more than any other single man, when Commissioner of Patents, to secure the appropriation from Congress to test the practicability of the telegraph, in which he firmly believed. He studied law at the Litchfield (Connecticut) law-school. His father was both a farmer and a lawyer, in the days when the men of mark lived in the country and upon farms, and he himself was in the same way a farmer, living first at Windsor, Connecticut, and carrying on the home farm, at the same time that he commenced the practice of law at Hartford. He, however, soon removed to Hartford, and preferred to engage in politics and various pursuits rather than adhere to his profession. He was, by President Jackson, appointed commissioner to the Indian tribes of the then far West, and afterwards Commissioner of the Patent Office. When commissioner to the Indians, on one of his trips toward the Rocky Mountains, Mr. Ellsworth was accompanied by Washington Irving. As Commissioner of Patents he was invited to take a seat in the Cabinet.

Mr. Ellsworth was one of the earliest to foretell the value of prairie lands, and invested in these when others laughed at his folly, declaring that they were so far from timber as to be forever uninhabitable. He also interested capitalists and public men from all sections of the country in the same class of investments, and in some counties in the West almost the entire lands they embraced were entered by him for himself and the parties he represented. On leaving the Patent-Office, in 1845, he removed to La Fayette, Indiana, to take charge, personally, of his large landed interests. He had already improved wide sections, though still residing in Washington. and now, though residing in the town, he commenced other extensive improvements. He was always experimenting and striving after new results, and probably used the first mowing machine ever introduced upon the prairies.

Mr. Ellsworth was thrice married. His first wife was Miss Nancy Goodrich, daughter of Elizur Goodrich, treasurer of Yale College. He was married a second time to Miss Marietta Bartlett, of Guilford Connecticut, and the last time to Miss Catherine Smith, of Durham, Connecticut, who survived him. He died at Fair Haven, Connecticut, December 27, 1858, having removed from Indiana only a few months before his death, and was buried at New Haven, Connecticut.

Hon. Edmund Burke, of New Hampshire, succeeded Mr. Ellsworth as Commissioner of Patents. During the four years (1845–1849) of his administration of the office the efforts of his predecessor for the advancement of agriculture were most ably seconded. The report of the Commissioner for 1845 was the largest that had yet appeared, filling 1,184 pages, less than 100 of which related to patents, the remainder being devoted to agricultural topics. The annual reports of the Department of Agriculture have seldom exceeded 700 pages, and have not averaged above 650 pages. Mr. Burke introduced into the report many new features, prominent among which were tables of British and United States imports and exports, and English cotton quotations. The papers in the appendix embraced a wide range of subjects. The potato disease was exhaustively discussed. The Commissioner stated that the number of packages of seeds distributed in 1846 would exceed 50,000. Additional facilities for obtaining information and purchasing seeds were declared to be necessary to the successful prosecution of the agricultural work of the office, a declaration which did not prevent Congress from withholding in 1846 the appropriation of a single dollar for agricultural purposes for the ensuing year. When the Patent Office report for 1846 appeared, agricultural statistics, essays, correspondence, and newspaper articles were entirely omitted.

Congress saw and acknowledged its error, and the appropriation ($3,000) from the Patent Office fund was restored in 1847. The report for that year was especially rich in statistics relating to the products of labor and capital in the United States, the movements of these and foreign products on interior lines of transportation, the consumption and surplus for exportation of food products, the demands of foreign countries for these, and tables of population, property, prices, &c. The volume was more profusely and expensively illustrated than any that had preceded it. In the report for the following year (1848) an increased amount of space was occupied by miscellaneous statistics, chiefly industrial. The quantity of seeds distributed in 1848 had increased to 75,000 packages, and it was announced that nearly as many had been obtained for distribution in 1849. In this report mention is made of foreign seeds having been submitted to the test of experiment by an intelligent gardener.

On the 30th of April, 1849, Mr. Burke retired from the Patent Office, and was succeeded by Hon. Thomas Ewbank, of New York. During his administration of the office some changes were made in the management of the agricultural division. By direction of the Secretary of the Interior, the task of collating and arranging the materials for the agricultural portion of the annual report was committed to a "practical and scientific agriculturist." Another change consisted in the publication of the agricultural portion of the report in a separate volume. The first of these volumes (for 1849) was edited, in accordance with the Secretary's views, by a scientific gentleman, Daniel Lee, M. D. It contained many elaborate scientific and practical papers, by Mr. Lee and others, and numerous commercial and miscellaneous statistics, but no statistics of the agricultural productions of the year. This departure from the uniform practice of Commissioners Ellsworth and Burke, Mr. Lee justified by declaring that all previously published statistics were unreliable, because of the insufficiency of the data from which they were calculated. He declined to "waste time and paper in printing crude guesses." The opinion was expressed that Congress or the State legislatures should devise and execute a plan for procuring accurate statistics, but Mr. Lee did not suggest a way by which the same result could be reached through the instrumentality of his own office. In the report for 1850 occurs the same important omission as in that for 1849; but in that for 1851 appeared the agricultural statistics of the seventh census, unaccompanied, however, by any analysis, comparison, or other comment. In November, 1852, Mr. Ewbank retired, and was succeeded by Hon. Silas H. Hodges, of Vermont, Mr. Lee remaining. In the report for 1852 no attempt was made to add to the value of the census figures, and the reader was left in ignorance whether the agricultural productions of that year were greater or less than those of the census year. In the report for 1849 Mr. Lee introduced meteorological statistics, and the space accorded to this specialty annually increased during his editorship of the reports.

On the 25th of March, 1853, Mr. Hodges was succeeded as Commissioner by Hon. Charles Mason, of Iowa, and soon after Mr. Lee, as editor of the reports, was succeeded by D. J. Browne. In Mr. Mason's four reports, for the years 1853, '54, '55, '56, agricultural statistics have no place, the editor entertaining the same views as his predecessor concerning the value of statistics not collected by the States or through an annual visit by the census marshal. In these views he was sustained by the Commissioner. Mr. Browne, however, greatly systematized the arrangement of the matter of the reports, and during the four years above named materially changed its quality. Fewer letters from correspondents were given, but more essays. A series of valuable papers on climatology and meteorology, by Lorin Blodget, esq., Professor Joseph Henry, and others, extended through the whole four reports. From Mr. Mason's first report (1853) may be dated the declension of the crop correspondent and the exaltation of the essayist in the annual reports.

The agricultural and industrial cabinet, meditated by Mr. Ellsworth, seems to have received some attention prior to the accession of Mr. Mason, who refers in his first report to the variety and value of the collection of seeds, fibers, insects, &c., contained in it; but this collection must have been very insignificant.

The annual appropriation, which, up to and including 1853, had never exceeded $5,500, was, in 1854, increased to $35,000, and it has never since been less than that sum. The annual distribution of seeds, cuttings, and reports had so stimulated agricultural enterprise and the development of the resources of the nation that Congress was led to adopt a more liberal policy of disbursement as a means of securing yet more bountiful results. In the first year of his administration Commissioner Mason was thus enabled to extend his purchases of seeds and plants far beyond those of any of his predecessors.

In the list of plants ordered in 1854 to be imported, and which were imported in that and the following year, were two plants of Chinese origin—the Chinese yam and the Chinese sugar-cane. In 1856 a portion of the Government grounds in Washington, lying between Four-and-a-half and Sixth streets, and Missouri avenue and the canal, embracing five acres, was set apart for the propagation of the seed of Chinese sugar-cane, otherwise known as sorghum. Large quantities of the seed produced on this ground were distributed in 1856 and 1857, after which, the country being well supplied by individual enterprise, general distribution by the Patent Office ceased. Thus originated the propagating garden now attached to the Department of Agriculture, and which, it is proper to add, has not now and never has had any connection with the botanical garden established during Mr. Adams's administration, but with which it has often been confounded.

The subject of entomology, as related to agriculture, had received some attention from the Commissioner of Patents prior to 1854. In that year Commissioner Mason employed Townend Glover to investigate and report upon the habits of insects injurious and beneficial to vegetation, especially those infesting the cotton-plant. Mr. Glover's first report was published in the Commissioner's report for 1854; another in that for 1855, and another in 1858. From his engagement, which was temporarily interrupted in 1858, may be dated the origin of the entomological branch of the Department. In 1855 an arrangement was made with the Smithsonian Institution for procuring and publishing meteorological statistics. In the same year a chemist and a botanist were employed. Their engagements were not permanent; nevertheless, the chemical and botanical branches of the Department of Agriculture may properly be said to have had their origin in this year. The report which appeared for 1856 was more profusely illustrated than any of its predecessors.

Mr. Mason resigned in August, 1857, and in the following month was succeeded by Hon. Joseph Holt, of Kentucky, who served until March 14, 1859. During his administration two annual reports were issued—for 1857 and 1858—both edited by Mr. Browne in accordance with his previous views. In the report of Commissioner Mason for the year 1855 much space had been devoted to the history and peculiarities of the Chinese tea plant, and the belief had been expressed that it could be successfully cultivated in most if not all of the Southern States of this country. Commissioner Holt determined to practically test the adaptability of the plant to our soil and climate, and in his report dated May 11, 1858, he announced that an agent had been sent to China to procure seeds of this and other plants. In the same year the plot of ground previously appropriated to the culture of the Chinese sugar cane was thoroughly improved for the purpose of planting in it the seeds of the tea plant when they should arrive, together with cuttings of native and foreign grape vines, which it had been determined to propagate, with the view of stimulating and improving grape culture. The tea seeds arrived in April, 1859, and subsequent efforts to germinate them and grow the young plants to maturity were crowned with the most gratifying success.

In 1858 Commissioner Holt extended invitations to a number of intelligent farmers, residing in different sections of the country, to meet at Washington for the purpose of considering the general interests of agriculture, and especially to inquire how these might be promoted through the instrumentality of the Patent Office. These gentlemen met at the Patent Office on the 3d of January, 1859, and continued in session eight days. The general plan of operations which had been pursued by the agricultural division of the office was unanimously approved.

Hon. William D. Bishop, of Connecticut, succeeded Mr. Holt May 23, 1859, and he in turn was succeeded February 16, 1860, by Hon. Philip F. Thomas, of Maryland. With the retirement of Mr. Holt, Mr. Browne ceased to edit the reports. The leading features of Mr. Bishop's report, for the year 1859, corresponded substantially with those of the reports for the preceding ten years. Agricultural statistics received no attention; essays were more prominent than ever. It was announced that there had been propagated and were ready for distribution 30,000 well-rooted tea plants, 12,000 foreign and domestic grape vines, and many other valuable exotic plants. Mr. Thomas resigned December 13, 1860, and issued no report. The report for 1860 was edited by Hon. Thomas G. Clemson, superintendent of the agricultural division. It was an able document, but Mr. Ellsworth's favorite idea of giving annually a review of the condition of the crops found no expression in its pages. An enlargement of the duties and an increase of the executive force of the agricultural division were recommended. In this and the preceding report meteorological observations were omitted.

From December 14, 1860, to March 28, 1861, S. T. Shugert, esq., was Acting Commissioner. He was succeeded on the date last named by Hon. David P. Holloway, of Indiana, whose annual report, appearing in the following year, (1862,) was the most complete agricultural manual the Patent Office had yet issued, but it did not contain one line of statistics relative to agriculture or related subjects, except some tables of milk production, nor a single letter concerning the condition of the crops. It was exclusively composed of essays. The report was the last of its kind. Thereafter the annual reports were devoted more to the presentation of the current facts of agriculture in the United States, especially the recording of its achievements, and less to the presentation of special theories and other matters which properly pertain to the province of the journalist and book publisher.

During Mr. Holloway's administration the Department of Agriculture was organized. Reference has already been made to the opinion expressed by several Commissioners in favor of an enlargement of the duties of the agricultural division. Commissioner Holloway, in his first annual report, which appeared in January, 1862, boldly and ably reiterated and enforced this opinion. He urged the creation of a separate Department of the Government—a Department of the Productive Arts—to care for all the industrial interests of the country, but especially for agriculture. The Commissioner's earnest and elaborate plea, aided by other influential representations, prevailed with Congress. A portion of the plan for the establishment of a Department of Industry was adopted.

On the 15th of May, 1862, the act establishing the "Department of Agriculture" became a law, and on the 1st day of July the Department was formally organized in the rooms of the Patent Office previously occupied by the agricultural division of that Bureau. The first section of the act defined the "general designs and duties" of the Department, and the succeeding sections provided for the appointment by the President of a chief executive officer, to be styled the "Commissioner of Agriculture." It was not, however, provided that the Commissioner, although the head of an independent Department of the Government, should be a member of the Cabinet.

Hon. Isaac Newton, of Pennsylvania, who had been since early in 1861, the superintendent of the agricultural division of the Patent Office, was appointed by President Lincoln the first Commissioner of Agriculture. Upon assuming the duties of his office, he at once proceeded to organize the Department in accordance with the liberal spirit of the act creating it. The time was pregnant with mighty events, and every Department of the Government felt the stimulus of the grave perils which beset the very existence of the nation. The clerical force of the former agricultural division was increased; a chemist (Charles M. Wetherill) was engaged, and a laboratory established; a skillful horticulturist was placed in charge of the propagating or experimental garden; greater activity in the collection and dissemination of current agricultural facts was inaugurated, and a larger quantity of seeds and cuttings was distributed.

The first annual report of the Department was a great improvement on most of the reports which had preceded it. It treated mainly of fresh topics in agriculture and connected fields of investigation and development. But its most significant feature was the revival of the long-neglected agricultural statistics, presented in connection with observations on the leading facts they developed, and followed by full tables of agricultural exports. The eighth census furnished the data for the tables of agricultural production. The important feature thus revived was specially required by the terms of the act creating the Department, and it has never since been omitted. A statistical branch was organized early in 1863, and to it was committed the collection and analysis of all statistics. Lewis Bollman, of Indiana, was appointed statistician. To ascertain at the earliest practicable period the condition of the crops, their yield, the prices obtained for them, and other facts connected with current agricultural operations, the Commissioner issued, during 1863, periodical circulars to farmers in every county in the loyal States. The results thus obtained were given to the public through the medium of monthly reports, which have been continued to the present day, with such modification of their original features as time and experience have seemed to render necessary. The first monthly report was issued July 10, 1863. The publication in the monthly reports of monthly and bi-monthly meteorological tables, furnished by the Smithsonian Institution, was commenced at the same time. These tables were reproduced in the ensuing annual report. Up to 1872 the same arrangement concerning these tables continued in force, when their further publication was suspended.

The employment of a skillful gardener was one of the most auspicious incidents of the first year of Mr. Newton's administration. He was fortunate in procuring the services of William Saunders, who has ever since given to the important duties assigned to him an intelligent and conscientious devotion. In the first report of the Commissioner, Mr. Saunders presented to the public a comprehensive programme of the uses to which he deemed it desirable to devote the experimental garden, and this programme is observed to-day.

In the second year of Mr. Newton's administration, (1863,) the number of packages of seeds distributed was 1,200,000, and of bulbs, vines, cuttings, and plants, 25,750. Townend Glover was employed as entomologist, a position which he has since continued to hold. The annual report for 1863 contained the first attempt that had been made since the days of Ellsworth and

Burke to ingraft upon the census returns the statistics of the yearly progress of agricultural production. The tables given in its pages, compiled from the monthly reports, showed the average yield per acre of the several crops of 1863, and the average prices obtained for them in the month of November of that year. From that day until this the Department has aided greatly, by the publication of tables of this character, in protecting alike consumers and producers from the exactions of grasping speculators. A Maine farmer once wrote to the Department: "Your monthly reports give me just the information I have wanted for years. Knowing the supply and demand, I am able to sell at my own price, and we can also foresee what will probably be wanted next year. Give practical farmers facts and let gentlemen of leisure theorize."

The annual report of the operations of the Department for 1864 contained a paper on "Pennsylvania barns," from the pen of Hon. Frederick Watts, third Commissioner of Agriculture. In this and the following year Henri Erni acted as chemist. In 1864 Government reservation No. 2, lying between Twelfth and Fourteenth streets, and the canal and B street south, embracing thirty-five acres, was assigned to the Department for experimental purposes. During 1865, 1866, and 1867 a large force of laborers was engaged on this reservation in testing the merits of many varieties of cereals, grasses, potatoes, tomatoes, and other agricultural products. At one time seventy varieties of potatoes were in cultivation; at another, sixty-seven varieties of spring wheat and fifty-five varieties of fall wheat. In 1865 a geological and mineralogical cabinet was commenced, and extensive additions were made to the chemical laboratory and the museum of fibers, cereals, specimens in natural history, &c. The annual report for this year was prepared in 1866, and edited by J. R. Dodge, who had been engaged on the statistical work of the Department since its organization. In 1866 Mr. Dodge was appointed statistician of the Department, and has since edited all its reports. The annual reports for 1862, 1863, and 1864 were issued under the supervision of James S. Grinnell, esq., chief clerk of the Department. In 1866 Thomas Antisell, M. D., was appointed chemist.

Owing to the large increase in the business of the Department, it was found that the rooms appropriated to its use in the Patent Office building were entirely inadequate. Congress, therefore, in 1867, upon the earnest recommendation of Commissioner Newton, appropriated $100,000 for the erection of a Department building on a portion of the Government reservation above described. The erection of the building, an ornamental brick structure, was commenced late in the summer of that year. Congress also appropriated $10,000 for the purchase of the private museum of natural history and other objects owned by Mr. Glover, the entomologist, and the collection was accordingly transferred to the Department.

On the 19th of June, 1867, Commissioner Newton died in Washington. He was born in Burlington County, New Jersey, in 1800, and passed his early years and the greater part of his long life on a farm. Shortly after attaining his majority, he settled on a farm in Delaware County, Pennsylvania, which became celebrated for its neatness, order, and productiveness. He eventually took rank among the model farmers of the State; was one of the first and most active members of the

State Agricultural Society, and for years was prominent in urging upon Congress the policy of establishing the Department of Agriculture over which he was subsequently called to preside. John W. Stokes, esq., the chief clerk of the Department, acted as Commissioner until November 29, 1867, when Hon. Horace Capron, of Illinois, was appointed Commissioner.

One of the first of Commissioner Capron's official acts was the abolishment of the experimental farm, previously determined upon, by which the expenses of the Department were at once greatly decreased. Attention was also promptly given to the execution of the plans previously prepared by Mr. Saunders, the superintendent of the experimental garden, for the improvement of the grounds of the farm with a view to producing a pleasing and artistic landscape effect. Embraced in these plans was the planting of an arboretum, comprising a complete collection of all hardy trees and shrubs, arranged in their natural orders. As a result of the joint efforts of the Commissioner and Mr. Saunders, the grounds surrounding the Department building are now among the most attractive in Washington.

In 1868 the Department building was finished, and in August the records and other property of the Department, with the exception of the museum, were moved from the Patent Office building. The museum was moved a month or two later. In 1869 the small botanical collection of the Department was greatly enlarged by the transfer of the extensive and valuable collection of the Smithsonian Institution, which had been contributed by various Government surveying and exploring expeditions. Dr. C. C. Parry, botanist, was placed in charge of the herbarium thus created, and the botanical work of the Department remained in his hands until the fall of 1871. In 1870 the large conservatory of the Department was commenced, and in 1871 it was completed.

On the 27th of June, 1871, Commissioner Capron tendered to the President his resignation, to take effect August 1st. General Capron was born in New York, and is the son of Dr. Seth Capron, who served with distinction in the Revolutionary Army. His attention was early directed to cotton manufacture, a business which he prosecuted for many years. In 1836 he became the owner of a large manufactory of cotton goods, and also of a manufactory of cotton machinery at Laurel Maryland. He also became the owner, at the same place, of an exhausted farm of 1,200 acres. This farm he brought to a high state of fertility, and by his management of it, and his frequent contributions to the agricultural press, he became widely known as a progressive farmer. In 1854 he removed to Illinois and again engaged in farming on a large scale. In 1862 he recruited the Fourteenth Regiment of Illinois Cavalry, and served with it to the close of the war. He was successively commissioned lieutenant colonel and colonel of the regiment, and at the close of the war was made brigadier general by brevet. His resignation of the office of Commissioner of Agriculture was tendered that he might accept a position as chief of a commission of American gentlemen organized by the Japanese government for the purpose of introducing into Japan American methods of agriculture and other features of our industrial progress. The chemist of the Department, Dr. Thomas Antisell, and the librarian, Dr. Stuart Eldridge, also resigned their positions to accompany him.

Hon. Frederick Watts, of Carlisle, Pennsylvania, was appointed successor to General Capron as Commissioner of Agriculture, and entered upon his duties on the 1st of August, 1871. Judge Watts is a native of Carlisle, and was educated at Dickinson College, where he was graduated at the age of nineteen. Immediately after his graduation he went to Erie County, Pennsylvania, and there lived three years, working almost daily on a farm. It was while residing here that the taste for farm life, which has characterized his whole career, was fully formed, and a practical knowledge of its essential requirements was thoroughly learned. Returning to Carlisle, he studied law with Andrew Carothers, and was admitted to the bar. He practiced his profession until 1848, when he was commissioned by Governor William F. Johnston as president judge of the ninth judicial district of Pennsylvania. This office he held for three years, when, it having been made elective, and the district being under the control of the political party with which he was not in sympathy, he retired from the bench and returned to the bar. His time, however, was not wholly absorbed by his profession, a large portion of it being devoted to the personal superintendence of a farm near Carlisle. For many years he had been a farmer as well as a lawyer, and had become known as one who believed in the application of science to the tilling of the soil. In 1858 he determined to abandon entirely the practice of law, and since that time has been almost exclusively a farmer. During the last few years he has resided on his farm, giving to all the details of its management his personal attention. In 1856 he was elected the first president of the Pennsylvania Agricultural Society, which office he held until 1862, when he declined a re-election. He was elected the first president of the board of trustees of the Agricultural College of Pennsylvania, a position which he still holds. He has been for twenty-seven years the president of the Cumberland Valley Railroad Company.

In January, 1872, Dr. Ryland T. Brown was appointed chemist of the Department, and in April of the same year Dr. George Vasey was appointed botanist. September 1, 1871, J. B. Russell, esq., was appointed librarian.

The total expenditures by the Government for the encouragement of agriculture, from the first appropriation of $1,000, in 1839, to the 30th day of June, 1872, exclusive of the cost of printing the agricultural reports, were $2,216,963. The total cost of the building erected for the use of the Department of Agriculture, furniture included, was $140,000, and the cost of the conservatory was about $25,000.

THE WORK OF THE DEPARTMENT.

The general purposes of the Department of Agriculture are very clearly expressed in the act creating it, which is as follows:

> *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there is hereby established at the seat of government of the United States a Department of Agriculture, the general designs and duties of which shall be to acquire and diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants.

SEC. 2. *And be it further enacted,* That there shall be appointed by the President, by and with the advice and consent of the Senate, a "Commissioner of Agriculture," who shall be the chief executive officer of the Department of Agriculture, who shall hold his office by a tenure similar to that of other civil officers appointed by the President, and who shall receive for his compensation a salary of three thousand dollars per annum.

SEC. 3. *And be it further enacted,* That it shall be the duty of the Commissioner of Agriculture to acquire and preserve in his Department all information concerning agriculture which he can obtain by means of books and correspondence, and by practical and scientific experiments, (accurate records of which experiments shall be kept in his office,) by the collection of statistics, and by any other appropriate means within his power; to collect, as he may be able, new and valuable seeds and plants; to test, by cultivation, the value of such of them as may require such tests; to propagate such as may be worthy of propagation, and to distribute them among agriculturists. He shall annually make a general report in writing of his acts to the President and to Congress, in which he may recommend the publication of papers forming parts of or accompanying his report, which report shall also contain an account of all moneys received and expended by him. He shall also make special reports on particular subjects whenever required to do so by the President or either House of Congress, or when he shall think the subject in his charge requires it. He shall receive and have charge of all the property of the agricultural division of the Patent Office in the Department of the Interior, including the fixtures and property of the propagating garden. He shall direct and superintend the expenditure of all money appropriated by Congress to the Department, and render accounts thereof, and also of all money heretofore appropriated for agriculture, and remaining unexpended. And said Commissioner may send and receive through the mails, free of charge, all communications and other matter pertaining to the business of his Department, not exceeding in weight thirty-two ounces.

SEC. 4. *And be it further enacted,* That the Commissioner of Agriculture shall appoint a chief clerk, with a salary of two thousand dollars, who, in all cases during the necessary absence of the Commissioner, or when the said principal office shall become vacant, shall perform the duties of Commissioner, and he shall appoint such other employés as Congress may from time to time provide, with salaries corresponding to the salaries of similar officers in other departments of the Government; and he shall, as Congress may from time to time provide, employ other persons, for such time as their services may be needed, including chemists, botanists, entomologists, and other persons skilled in the natural sciences pertaining to agriculture. And the said Commissioner, and every other person to be appointed in the said Department, shall, before he enters upon the duties of his office or appointment, make oath or affirmation truly and faithfully to execute the trust committed to him. And the said Commissioner and the chief clerk shall also, before entering upon their duties, severally give bonds, with sureties, to the Treasurer of the United States, the former in the sum of ten thousand dollars, and the latter in the sum of five thousand dollars, conditional, to render a true and faithful account to him or his successor in office quarter-yearly accounts of all moneys which shall be by them received by virtue of the said office, with sureties to be approved as sufficient by the Solicitor of the Treasury; which bonds shall be filed in the office of the First Comptroller of the Treasury, to be by him put in suit upon any breach of the conditions thereof.

Approved May 15, 1862.

Notwithstanding the minuteness with which the functions of the Department are described in this act, it will be observed that all the details of its organization and equipment necessary to the performance of these functions are delegated by implication to the Commissioner, and to him alone. As one result of this delegation of a great responsibility, the methods observed by the Patent Office in the management of its agricultural division were generally continued, and the early policy of the Department was simply an enlargement of the scope of the division. Gradually, however, the range of Department operations was still further enlarged, until to-day, without the intervention by Congress of a single explanatory statute, it embraces many features not contemplated when the Department was organized.

Among these may be named the planting of an extensive arboretum, the cultivation of the public taste by the ornamentation of the Department grounds, the erection of a large conservatory filled with rare and useful plants of foreign origin and susceptible of acclimation upon American soil, the rehabilitation of southern agriculture, the fostering of agricultural colleges, and the communication in writing of information concerning the many subjects of inquiry which are now daily brought to the attention of the Department by progressive farmers, horticulturists, fruit-growers, &c. The Department as it now exists is a growth, and not a creation. Its various divisions, its policy, its daily operations, exist by force of custom rather than by force of legislation. It should be remembered, too, that the work of the Department can not, from its very varied character, be subjected to the principles of routine which prevail in other Departments of the Government. The conditions and needs of agriculture that exist to-day may not exist to-morrow. The mere statement of these facts is a sufficient explanation of changes that have from time to time occurred in the management of the Department, and justifies a reasonable hope that the experience of the past will lead to other changes which every friend of agricultural progress will be glad to observe and commend.

The Department of Agriculture, as it is to-day organized and administered, embraces, first, a division of statistics and publication; second, the seed division; third, the horticultural and propagating division; fourth, the chemical division; fifth, the botanical division; sixth, the entomological division; seventh, the museum; eighth, the library; ninth, correspondence, records, and accounts;

and tenth, the distribution of documents. An explanation of the constitution and workings of these divisions is herewith given, with such amplitude of detail as will, it is hoped, stimulate intelligent criticism. If the Department is not in all respects what it ought to be, its friends should know its defects; but if it is doing its work honestly, intelligently, and promptly, credit should be given it.

The *division of statistics and publication* comprises a statistician and ten clerks. A part of this force is engaged in the preparation of statistical matter for the monthly, annual, and special reports of the Department; the remainder is engaged in the preparation and revision of the literary matter for these reports. The duties pertaining to this division are thus seen to be twofold: first, statistical; second, editorial. The time is undoubtedly near at hand when the increasing business of the Department will require that these duties be divided, and that each be placed in charge of a competent head.

The periodical collection of statistics relating to crops and other agricultural products was established as the permanent policy of the Department soon after its organization. The necessity for the adoption of this policy had long been felt. The country wanted to know the extent and value of its agricultural resources and the prospects and yield of its harvests. A part of this information it could acquire only at intervals of ten years, through the results of the census; the remainder could not be obtained at all. In the establishment of the statistical division this long needed want was supplied.

The plan adopted for the collection and publication of agricultural statistics was substantially the same as that which is now observed. A corps of correspondents was established in every State and Territory. The aggregate number of these correspondents now amounts to several thousand. It has been the aim of the Department to have at least one correspondent in every county in the Union, but a greater number than four is not allotted to one county. The correspondents receive no pecuniary compensation, but their services are in part requited by supplying them with the seeds and publications of the Department. Nearly all have been selected from the class of practical farmers; not one in a hundred has been taken from the commercial and manufacturing classes. They have been selected mainly because of their prominence as farmers, or because they have been recommended by leading citizens of their respective localities, as peculiarly fitted to communicate information on agricultural subjects.

About the fifteenth of each month circulars are sent to correspondents propounding specific interrogatories concerning the acreage and condition of growing crops and the condition, yield, and prices of these and other products of the farm. The answers are required to be in figures, so that the utmost possible precision and method may characterize them. On every circular is now printed the following explanation: "In representing acreage, condition, or product, in comparison with former years, or in comparison with an average crop, 100 will be the basis; an increase of one-tenth, or ten per cent., will be recorded 110; and a decrease of five per cent. will be marked 95," &c. There is thus no room for misapprehension of the nature of the return desired, and no possibility of serious mistakes, except such as may result from the restricted observation or imperfect judgment of the correspondent. In the very nature of the case, however, mathematically exact returns cannot be expected; estimates only are possible. Fields in cultivation are not measured; the contingencies of drought and floods, insect ravages, frost, and other adverse influences can not be foretold; stock is not counted; the harvest is not placed in the scales. The circulars are made returnable on the first day of the second month after they are distributed. As soon as they are received by the Department the estimates contained in them are classified and tabulated, and then analyzed and commented upon by the statistician, after which they are given to the public in the monthly report of the Department, which the present Commissioner desires shall be printed as early as the middle of the month. A portion of the annual report is devoted to the presentation of aggregate results derived from these monthly returns of correspondents. Once in ten years the census furnishes the basis for estimates of the annual products of agriculture; but it does not furnish returns of the prices per bushel, ton, &c., of these products, nor of the acreage of the various crops, which the Department does. The market quotations as published in commercial journals of the large cities are also reproduced in the monthly and annual reports.

The literary work pertaining to the statistical division may be classified under two heads: that which is prepared in the Department, and that which is contributed by outside specialists. Contributions from these specialists are paid for at a uniform price for each printed page. Much of the literary work done in the Department is compiled from the replies to circulars upon special topics of inquiry sent to regular and occasional correspondents, and also from current domestic and foreign agricultural publications.

The record of the observations of the meteorological correspondents of the Smithsonian Institution (about four hundred in number) was published in the monthly and annual reports of the Department up to the present year, when the Commissioner ordered its further publication to be discontinued. The reasons for this discontinuance were as follows: first, the publication from year to year of undigested, unanalyzed tabular statements of meteorological phenomena is believed by the Commissioner to be of no practical value to the farmer, for whose benefit the Department was established, while the large space they occupied in the reports is greatly needed to give to him facts of the utmost importance: second, Congress has made no provision for the employment by the Department of scientific experts to analyze the observations of meteorologists and deduce from them, for popular use, information concerning the climate of the various portions of the United States, while such analysis and deduction would seem to be contemplated in the bequest of the founder of the Smithsonian Institution, and in the action of Congress which provides for daily observations of the weather by the Signal Service Corps of the War Department. In other words, the Commissioner believes that the publication of the tables of the meteorological observers of the Smithsonian Institution more properly pertains to the annual reports of that institution than to the reports of the Department of Agriculture, and that there exists a manifest impropriety in three institutions of the Government, each located at the National Capital, being engaged in a branch of work which should be done, and done well, by one.

The inutility for the practical, every-day purposes of the farmer of the publication of meteorological tables without analysis or comment is well explained in the following extract from a letter written to the Commissioner by the secretary of a southern farmers' club. Referring to the work of the Department, he says:

> In meteorology, too, we would be benefited by some more general statements, as, for instance, a record for successive years of the last frost in spring and the first frost in autumn; the sums of the temperatures, of the rain-fall, &c., for each season, and during the period of growth of our leading crops. The farmer has not the time nor the capacity for making these generalizations, either from his own observations or from those of the Department of Agriculture, or the Signal Corps. At present the distinctive features of succeeding crop seasons pass by and leave no record for our guidance.

Of the monthly report there are printed monthly (except during the months of March, May, August, and November) about 27,000 copies, which are distributed to the newspapers, to farmers' clubs, to State agricultural colleges and societies, to the regular correspondents of the Department, to members of Congress, to our diplomatic representatives abroad, and to foreign legations in Washington. Of the annual report there have been printed annually about 250,000 copies, of which only 25,000 have been distributed by the Department, the remainder being distributed by members of Congress. Those distributed by the Department have been sent mainly to the regular correspondents, to farmers' clubs, and to miscellaneous applicants. All of these reports, annual and monthly, are printed by the Congressional Printer. As the present Commissioner of Agriculture and prominent gentlemen in Congress have advocated the policy of placing extra copies of the annual report on sale at cost, so that all who desire the book may obtain it, it may be stated that the net cost to the Government of printing and binding the report is fifty cents a copy; including wrapping and postage to the post-office where delivered, the cost would be about sixty cents.

The character of the annual and monthly reports of the Department is well known. In the former is published agricultural information of permanent value; in the latter, in addition to the crop estimates and the market reports, are given fresh agricultural facts derived from the correspondence of the Department and from other sources. It may be remarked, however, that the present Commissioner favors the policy of increasing the value and extending the influence of the monthly report. He has already ordered that the several heads of divisions in the Department shall regularly contribute to its pages, and he believes that its contents should be yet more varied and comprehensive than they have been. He believes also that it would be wise to publish the report at least once in every month in the year, instead of only eight times yearly, as is now the practice. He believes that the report should give the freshest advices of the progress of agriculture in foreign countries as well as in our own country, and that much of this information may be derived from an attentive perusal of current agricultural literature, especially foreign periodicals. If the publication of the monthly report be omitted four times in the year, as has been customary, much of this information is either entirely lost or given to the public long after it might have been of benefit to the farmer. To illustrate: a subject of vast importance to the American farmer is a knowledge of the condition of foreign crops. If they are short, he should be promptly advised of the fact, that he may not fall a prey to the commercial middlemen, who too often realize exorbitant profits because of their superior sources of information. A compilation of all available information concerning domestic and foreign crops and foreign markets for breadstuffs, and its publication at least once in every month, the Commissioner believes to be a duty the Department owes to the country.

The *distribution of seeds* is distinctly authorized in the organic act, and it is a leading feature of Department work. Objection is sometimes made that this distribution is not necessary. It is claimed that the carpenter and the blacksmith are just as much entitled to receive from the Government, free of cost, the implements of their respective trades as is the farmer to receive packages of seeds which cost him nothing. But in this view two important facts are overlooked: first, that no seed is sent to individuals or societies in sufficient quantities to produce a crop; second, that the distribution of seed is almost wholly confined to such varieties as can not be readily procured by the farmer, but which, when procured, do not, like the carpenter's plane or the blacksmith's hammer, benefit the recipient alone. Samples for experiment only are sent—from a quart to a bushel of wheat, rye, oats, barley, cotton, &c. If the experiments with any variety prove it to be desirable, and an improvement upon varieties previously cultivated, the product will doubtless be carefully husbanded by the experimenters, but the whole country will be benefited in the succeeding harvests even more than they. The following extract from a paper in the annual report of the Department for 1869, prepared by Mr. F. H. Impey, one of its clerks, will show in what way it will be benefited:

> As shown by the annual report of the Department for 1868, the wheat crop reached 224,036,600 bushels; acreage, 18,460,132; average yield per acre, 12.1 bushels; value of crop, $319,195,290; average price per bushel, $1.42. The reports of experiments with Tappahannock wheat distributed by the Department show an average yield per acre of twenty-five bushels; the total yield at that rate, on the acreage of 1868, would be 461,503,300 bushels, an increase of 237,466,700 bushels; which, at $1.42 per bushel, would be a money value increase of $337,202,714. If this wheat were to take the place of other varieties, however, and should be sown as the general crop is now sown, without the special care usual in experimenting, the average yield would, of course, fall below twenty-five bushels; but if the average increase per acre could be raised to fifteen bushels, (a low estimate for the Tappahannock,) the increase in bushels would be 55,380,396; in money value, $78,640,162.
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> The oat crop of 1868 was 254,960,800 bushels; acreage, 9,665,736; average yield per acre, 26.3 bushels; value of crop, $142,484,910; average price per bushel, fifty-five cents. Reports of experiments with the Excelsior oats, a new variety, introduced by the Department, show an average production of forty bushels per acre, sixty bushels not being an uncommon yield. Estimating the average yield, if generally introduced, at 30.3 bushels, an increase of four bushels per acre over the average yield of 1868, and the addition to the wealth of the country in the item of oats would be 38,662,944 bushels, or $21,264,619.
>
> The weight of the product of the Excelsior oats for a few years after their introduction may be fairly averaged at 20 per cent. above the common varieties, estimating the latter at thirty pounds to the bushel and the former at thirty-six, although in many cases forty and forty-five poands per measured bushel have been reported. Add 20 per cent. to the sum above ascertained, and an increase will be shown of $25,517,542.

Among many recent examples in possession of the Department of the beneficial results produced by the introduction of new varieties of seeds, the two which follow are selected. Elbert Wheeler, of Dunton, Illinois, writes to the Prairie Farmer:

> About five years ago one of my neighbors received from Washington a package of wheat, which, being a sensible man, he proceeded to test. His second crop was eighteen bushels of number one wheat, raised on half an acre of land. Last year this wheat yielded from twenty to thirty bushels to the acre, while other kinds gave only five or ten. Among other advantages, this wheat requires but four or five pecks of seed to the acre, weighs sixty-four pounds to the bushel, grades as number one in the market, and is never injured by the chinch-bug.

Wm. F. Dunbar, of Caledonia, Minnesota, writes to Hon. Alexander Ramsey, United States Senator:

> Those oats I received from you some three years ago prove to be a fine thing. I sold thirty bushels last year for seed for $30. They weighed forty-seven pounds per bushel, and yielded about sixty bushels per acre, or ninety bushels by weight. I raised 465 bushels this last season.

The causes of the deterioration of seeds and plants seem to be imperfectly understood. It may be assumed as a fact that careful cultivation will not always prevent a gradual deterioration. Very much consideration is to be given to the adaptation of the soil to the plant. A soil not adapted to the cultivation of wheat will certainly cause a deterioration in quality as well as in quantity, but where the habits of the plant and the character of the soil are adapted to each other, if there be deterioration in quality or quantity it may be attributed to careless selection of seed or to improper cultivation of the soil. Some seeds, such as barley and oats, generally deteriorate in quality and quantity of yield because the climate of most sections of our country is not favorable to their cultivation. Barley and oats require for their highest development a long, moderately warm, and moist growing season. Chambers's Encyclopedia says of oats: "It is a grain better suited to moist than to dry, and to cold than to warm climates, although it does not extend so far north as the coarse kinds of barley." A cold and backward spring and a blistering sun in summer are not favorable to barley and oats. But these conditions are of frequent occurrence in many parts of the United States, and hence, with the most thorough cultivation and the exercise of the utmost care in the selection of seed, there is a constant tendency to deterioration in both crops. The only remedy is to procure fresh seed, from time to time, from Northern Europe, the adopted home of these two cereals, and distribute it to the farmers of the country. During the past year the Department distributed nearly one thousand bushels of oats, grown in Germany and Scotland, the weight of which was forty-five pounds to the stroked bushel. American oats, grown from seed the product of many years of in-and-in cropping upon American soil, seldom weigh more than thirty pounds to the bushel.

If the superiority of the seeds distributed by the Department had not been discovered from information derived from its foreign and domestic correspondence, and if the seeds themselves had not been procured at the expense of the Government and distributed to farmers, how would they have reached the farmer to produce such surprising results as we know were so soon attained? On the introduction of a valuable variety of wheat, barley, oats, or other cereal, a bushel or more is immediately distributed for trial in every congressional district. The Department thus effects, *at once*, more than would be accomplished by individual effort in many years. Private enterprise can not supply the wants of farmers in every section of the country so well as the Department can, nor half so promptly. It will not go abroad for cereals and grasses the merits of which have not yet been tested upon American soil, nor will it visit the sparsely settled portions of the country with costly seeds which could find but few buyers. The Department can do this, and in thus adding to the wealth of the country and aiding to develop its agricultural resources it amply justifies the wisdom which created it.

The seeds of the Department are distributed through five channels: first, State, county, and other agricultural societies; second, agricultural colleges; third, regular statistical correspondents; fourth, members of Congress; fifth, miscellaneous applicants. Through these channels every part of the country is reached, and every interest of agriculture is served. Due attention is given to the special needs of different localities. For example, the South needs grasses, and grass seeds are sent to it; the West wants timber, and tree seeds of rapidly growing varieties are freely distributed. It is the policy of the present Commissioner to place a larger quantity of seed in the hands of individual experimenters than has heretofore been customary, and to lessen, proportionately, the number of experimenters. He believes that a much more satisfactory experiment can be made with a peck or bushel of wheat or oats than with a handful. The agricultural colleges should experiment largely with seeds supposed to be adapted to their respective States, and farmers' clubs and statistical correspondents should not divide into small parcels and place in many hands the cereals, grasses, &c., sent them by the Department, but should place all such in the hands of a few careful farmers, who could, in a few months, distribute the product of each variety among their neighbors. The object of the Department is not to supply valuable seeds to all who may desire them, but to adopt and adhere to the best system for introducing them into every locality adapted to their growth. The agricultural colleges, farmers' clubs, and the statistical correspondents of the Department undoubtedly afford the best instrumentalities for accomplishing this object. All recipients of the seeds of the Department are requested and expected to report to it the results of their experiments, for publication in the annual and monthly reports, and for guidance in the selection of seeds for future distribution.

The seed division is in charge of a superintendent, who ought always to be a practical farmer. He is aided by an assistant superintendent. Three clerks keep a record of all seeds distributed, and during the fall, winter, and spring months from fifteen to thirty men and women are kept constantly employed in packing and shipping them. The small muslin sacks in which some of the seeds are sent from the Department are now made in the seed division, but the paper envelopes in which other seeds are placed are made elsewhere. The amount of money appropriated for the purchase and putting up of seeds and plants during the fiscal year ending June 30, 1872, was $45,000. During the following year the appropriation will be $55,000. About one-half of the whole amount is expended for such seeds as are adapted to general farm cultivation. The remainder is expended for vegetable seeds, tree seeds, flower seeds, &c. The number of State societies supplied with seeds during the past winter and spring was 69; agricultural colleges, 31; farmers' clubs, 1,950; statistical correspondents, about 6,000. Liberal quotas were sent to members of Congress; and from October to May a daily average of three hundred miscellaneous applicants received seeds. But all miscellaneous applications could not be favorably considered. With a limited appropriation this was impossible, if it had been desirable.

Tabular statement showing the quantities and kinds of seeds issued from the seed division from July 1, 1871, *to May* 24, 1872.

NAMES OF SEEDS.	To whom sent.					
	Senators and Members of Congress.	Agricultural societies.	Statistical correspondents.	Meteorological observers.	Miscellaneous applicants.	Amounts.
Vegetables, 218 var...papers	144, 965	92, 278	75, 455	12, 982	146, 257	471, 937
Flowers, 180 varieties...do...	75, 964	25, 520	10, 900	7, 030	71, 676	191, 090
Herbs, 12 varieties......do...	3, 948	....	....	....	288	4, 236
Tree and evergreen seeds, 50 varieties ....papers.	68	....	....	....	1, 459	1, 527
FIELD AND OTHER SEEDS.						
Wheat, 4 varieties....quarts.	12, 805	8, 736	10, 300	....	5, 767	37, 608
Oats, 4 varieties..........do...	4, 557	7, 148	5, 206	....	4, 101	21, 012
Barley, 3 varieties ......do...	2, 195	3, 444	1, 348	....	1, 712	8, 699
Rye ....do...	796	....	3, 080	....	278	4, 154
Field corn, 2 varieties...do...	345	1, 200	828	....	1, 615	3, 988
Field peas ....pints.	603	2, 224	1, 674	....	838	5, 339
Grass seed, 5 varieties. quarts.	2, 070	16	4	....	1, 752	3, 842
Clover, 7 varieties......pints.	956	248	....	....	905	2, 109
Tobacco, 4 varieties ..papers.	21, 770	....	140	....	5, 485	27, 395
Sugar beet, 2 varieties..pints.	81	4, 204	....	....	461	4, 746
Mangel-wurzel, 4 var ...do...	52	2, 454	....	....	471	2, 977
Vetches or tares.........do...	....	....	....	....	163	163
Osage orange..........papers.	....	....	....	....	69	69
Sorghum ....quarts	22	....	....	....	204	226
Opium poppy .... papers.	70	....	....	....	426	496
Broom-corn..............do...	....	....	....	....	24	24
Tea seeds.................do...	30	....	....	....	195	225
Rice ....quarts.	....	....	14	....	21	35
TEXTILES.						
Cotton, 2 varieties....quarts	12	....	....	....	549	561
Ramie ....papers	....	....	....	....	225	225
Hemp, 2 varieties..half pints.	14	64	....	....	46	124
Jute......................do...	....	....	....	....	235	235
Flax ....quarts	....	....	....	....	4	4
Grand total............	271, 323	147, 536	108, 949	20, 012	245, 226	793, 046

Of the winter wheat heretofore distributed by the Department, the Mediterranean varieties have been prominent; the Tappahannock is a Virginia variety, and the Fultz a Pennsylvania variety. Of the spring wheat, some has been obtained in Europe, the Australian varieties in Oregon, and at least one very good domestic variety in Illinois. Oats and barley have been brought from Europe. The White Schonen oats were purchased in Hamburg, the Excelsior in Bristol, and the Birlie in Glasgow. Alsike clover and Italian rye-grass are also obtained in Glasgow. Jute seed comes from Calcutta. The best sugar-beet and mangel-wurzel seed are purchased in Paris, whence come also many superior garden seeds. Other seeds for the garden come from England, but the best tomato, cabbage, onion, melon, and many other vegetable seeds in general use are grown in our own country. Flower seeds are usually imported from Europe. The present Commissioner aims to procure the best seeds adapted to the soil and climate of the United States, and in adhering to this policy he rejects at once cheap seeds and such as may not be true to name. The Department would not be justified in distributing inferior seeds, or in sending its orders to irresponsible dealers.

The objects of the *horticultural and propagating division* were set forth in brief but comprehensive terms by the superintendent of the division in the Commissioner's report for 1867:

> 1. To procure and encourage the transmission of seeds, cuttings, bulbs, and plants from all sources, both foreign and domestic, for the purpose of testing their merits and general adaptation, or for particular localities of this country. 2. To procure, by hybridizing and special culture, products of a superior quality to any now existing. 3. To ascertain, by experiment, the influences of varied culture

on products, and the modifications effected by the operations of pruning and other manipulations on trees and fruits. 4. To investigate more thoroughly the various maladies and diseases of plants, and the insects that destroy them. 5. To provide ample means for thoroughly testing samples of all seeds and other contributions that may be received. 6. To cultivate specimens of the various hedge plants, and exhibit their availability for that purpose. 7. To cultivate a collection of the best fruit trees and plants, such as grapes, apples, pears, peaches, strawberries, raspberries, currants, &c., so as to compare their respective merits. 8. To plant a collection of choice shrubs adapted for decorating gardens and landscape scenery. 9. To erect glass structures, for the twofold purpose of affording the necessary facilities for cultivating exotic fruits and plants, and to furnish examples of the best and most economical modes of constructing, heating, and managing such buildings.

These objects have been faithfully and systematically adhered to. Since 1862, the year in which the Department was organized, the present superintendent has had charge of the experimental garden, and since 1867 he has also had charge of the grounds surrounding the Department building. Prior to 1867 the experimental garden had shown the wisdom of the policy that had inaugurated the propagation of improved varieties of domestic fruits and of valuable seeds and plants the product of other lands. Since then there has been ample verge for experiments, for comparison, and for the exercise of such taste and the application of such skill as American horticulture demands. Every avenue to horticultural knowledge and kindred sciences has been opened to the public. The flower-garden, noticeable not more for the variety and luxuriance of its flowers than for the exquisite harmony of their arrangement; the conservatory, 320 feet long from east to west and reaching southward 150 feet from the center of its extreme length, with its perfect heating arrangements, its tropical and semi-tropical fruits, its foreign grapes, and its miscellaneous collection of useful foreign plants—dyes, gums, textiles, medicines, &c.; the arboretum, embracing as complete a collection of hardy trees and shrubs, arranged in family groups, as can be found in any country: the experimental fruit-orchard; the curved walks; the terrace; the smoothly-shaven lawns; the superb landscape effect: all these greet the eye of the visitor to the Department. If he will extend his walk to the experimental garden, he will be impressed with other lessons which can not be learned so well out of books. The whole horticultural division is best comprehended when regarded as a living teacher, to be seen face to face, talked with and listened to. It is an educator, from which may be learned the names of the best fruits; the uses of a thousand foreign plants which are adapted to cultivation upon American soil; the diseases of grapes, pears, peaches, &c.; interesting results in hybridizing; the best methods of pruning, budding, and grafting; and, generally, the best methods of conducting all horticultural and fruit-growing enterprises. These things the division aims to teach, and to such legitimate objects it should mainly be devoted. Its mission should not be construed to be merely, or even primarily, the *distribution* of plants neither new nor rare. Plant distribution is proper enough in a limited sphere, but a disposition to make it the principal work of the division should meet with no encouragement in any influential quarter. The Department of Agriculture may properly distribute such useful plants of foreign origin as have been found adapted to our climate, and such valuable plants and cuttings of native growth as have been tested in its grounds and can not easily be obtained elsewhere. The introduction of two hundred varieties of apples from Northern Russia, and the distribution of several thousand grafts of these varieties throughout the Northwestern States and Territories, may be mentioned as an illustration of foreign products; grafts of standard varieties of American apples as an illustration of native products. But it should not be called upon to grow common varieties of small fruits or flowering plants for distribution to a favored few. That is clearly a perversion of the mission of the horticultural division. A proposition was recently made in Congress to place all the public gardens of the National Capital under the exclusive control of the Commissioner of Agriculture. Rather than have the Department absorb and continue the work of the "botanical" and other public flower gardens, with which it has now no connection whatever, it could better afford to abandon entirely its own distribution of common varieties of useful and ornamental plants, bulbs, and vines, a work which has largely absorbed the means appropriated to the garden, and prevented the superintendent from engaging in other duties of greater importance. England is justly proud of its royal botanical gardens at Kew, to which come visitors from all parts of the globe to glean instruction under its mighty palms and from its giant oaks, but they never come to carry away cheap gifts, the counterparts of which may be had for a shilling at any flower-stand. The grounds of the Department of Agriculture can not rival the Kew gardens, nor is it proposed that they shall ever contain all of its botanical features; but they should at least be kept as free as they from all selfish influences.

As has been stated, a leading object of the horticultural division is to direct attention to such exotic plants as possess useful properties and are capable of adaptation to American climatic conditions. In pursuing this object, the superintendent has aided greatly in giving proper direction to the enterprise of such citizens as would introduce new agricultural interests. This aid has been rendered mainly through the medium of official correspondence that is never published, but it has been none the less timely and valuable, nevertheless. Coffee plantations can not be successfully established in localities where the temperature ever falls below 55° Fahrenheit, a condition which nowhere exists in the United States; cinchona can be cultivated where the temperature does not fall below 32°, a condition which is supposed to exist in southern California; the tea plant and *Eucalyptus globulus* will succeed in some portions of the United States, but not in all; the olive will flourish in our Southern States, but its cultivation can scarcely ever be profitable, owing to its slow growth and the ease with which its oil may be counterfeited; the fig may be successfully cultivated as far north as Baltimore, and, although former efforts to properly cure the fruit have not been successful, the advice has been given to experiment with the recently improved artificial mode of drying fruits. These instances are given as illustrations of the character of the information furnished by the horticultural division from time to time, in response to inquiries, and it is not the least of the achievements of the Department of Agriculture that this division has given advice that has stimulated enterprise in proper directions, and prevented the sacrifice of fortunes in efforts that could only have proved unavailing.

A descriptive catalogue of the plants in the exotic collection of the Department has just been prepared by the superintendent, a copy of which is placed in the hands of visitors. A microscopic investigation into the causes of blight in pears, yellows in peaches, mildew in grapes, and other diseases of fruits has been in progress during the past year under his direction, and the results will be published in the Department reports. Among recent additions to the conservatory may be mentioned ninety varieties of foreign grapes, and one hundred and seventy species and varieties of the citrus family.

The superintendent of the division has two assistants, and a few laborers subject to his orders. The improvement of the Department grounds is not yet completed, and during the fiscal year of 1871–'72 the sum of $26,800 was expended for this purpose. For the support of the experimental garden the appropriation for the same period was $10,000, a sum that could not purchase all the plants that have been propagated and distributed during the year.

The *chemical division* is in charge of a chemist and one assistant. The laboratory is one of the most complete in the country; the annual appropriation by Congress for the purchase of chemical supplies is most liberal; the opportunities for usefulness in this domain of science are unbounded. Agricultural chemistry has attracted much attention within the past few years from progressive American farmers, and these farmers have naturally looked to the Department of Agriculture for theoretical instruction and for practical guidance in applying its principles and resources to the every-day operations of their farms. Whether they have heretofore received all the help they had a right to expect, is an inquiry which can have no sort of relevance to the present and pressing duty of the Department to go forward with zeal, and with the ample means at its command, in the work which Liebig, Voelcker, and other agricultural chemists abroad have so successfully inaugurated.

The use of the division for purposes of private enterprise or private profit not related to agriculture is not permitted by the present Commissioner. It is not intended by this remark to imply that such use was not deprecated by his predecessors and by the several chemists who had successively presided over the laboratory. It was condemned by some of them in official reports, but the importunities of persons interested in the opening of new mines, the sale of new wines, the introduction of new medicines, &c., was permitted to overrule their official and professional judgment. It is not the business of the Department to assay ores, analyze mineral waters, and give certificates to wine-makers and patent-medicine venders, but to make such analyses and such investigations as will be of benefit to American farmers. If a farmer desires an analysis of some soil upon his farm which possesses an objectionable property that it is desirable to neutralize, let him send a sample to the Department and the analysis will be made. If he is the owner of a deposit of peat, or marl, or phosphates, its approximate value will be given him. If there is a stratum of rock upon his land which he thinks may be made available as a fertilizer for his crops, let him send a sample. But in a larger sense the chemical division can and should benefit the farmer. It can show what kinds of soils are best adapted to the production of certain crops; how all crops feed and how they grow; what classes of fertilizers are best suited to wheat, rye, oats, barley, corn, root-crops, the grasses, &c.; on what soils, for instance, lime is needed, and to what soils its application would prove an injury; why a rotation of crops is necessary, and what under given conditions would constitute a good rotation; the composition of agricultural products, as, for instance, the relative succulence of grasses, the percentage of sugar in the sugar beet and of nutrition in sugar beet pulp after the juice is expressed; the value of commercial manures, now everywhere tempting the farmer to part with his earnings; how farmers may make valuable fertilizers upon their own farms with little outlay; &c., &c.

The principal work now being prosecuted by the chemical division is of a most practical character. It embraces a thorough inquiry into the constituent elements of superphosphates and other commercial manures, and it is intended to furnish the farmer with a measure of their value which will serve him as a guide to the selection of such manures as are adapted to his soil and the crops he wishes to cultivate. There have been loud complaints of frauds and adulterations in these manures. It is not assumed that these complaints are either true or false. The chemist has prefixed to his analyses a table of values for ammonia, potash, and phosphoric acid, soluble and insoluble; and following each analysis, he presents, in pounds and hundredths, the quantity of each of these ingredients in a ton of the fertilizer analyzed. This course is fair alike to the farmer who buys and the manufacturer who sells. If it shall operate incidentally to drive fraudulent manufacturers out of the market, as a similar course has done to a great extent in England, so much the better for the farmer and the honest manufacturer.

The value to the farmer of such investigations as that now being conducted in the laboratory of the Department is illustrated in a statement made by Professor Voelcker in his annual report to the Royal Agricultural Society of England for 1864, as follows:

> It is with satisfaction that I have to report that the adulteration of artificial manures is decreasing from year to year. Few samples of Peruvian guano are now found to be adulterated, and superphosphate of lime and similar fertilizers are generally sold in a better condition and of higher intrinsic value than in former years.

A further illustration is furnished in the recently published statement that a specimen of oil-cake extensively sold as cattle-feed was lately received by Professor Voelcker for examination, and the microscope revealed the presence of husks of the castor-bean in large quantities, thus at once explaining the alarming illness which it had caused among the stock of the farmers who used it.

Attached to the chemical division is a geological and mineralogical cabinet, a spectroscope, a powerful microscope, and many other objects of interest to visitors.

The *botanical division* of the Department of Agriculture scarcely had an existence until about the beginning of the year 1869, when a conditional donation of several thousand specimens of dried plants was received and placed in charge of a botanist skilled in the arrangement and classification of such collections. This collection was composed, mainly, of the botanical accumulations resulting from various Government exploring expeditions and surveys. The botanist to whose care it was committed retained his connection with the Department for upwards of two years and a half, (from March, 1869, to September, 1871,) and during that time labored with zeal to create, out of the material thus furnished him, and from contributions from other sources, "a great national herbarium," or collection of dried plants. This herbarium now occupies several large and tasteful walnut cases in one of the largest rooms in the Department. Whether it has ever been a benefit to the farmer, or is likely to be, are questions which have been asked frequently, and concerning which the present Commissioner of Agriculture holds very decided opinions. He does not believe that the exclusive care of a collection of dried plants is the work which is appropriate to the mission of the botanist of a Department organized to minister to the practical work of farmers, although such care may be proper enough in regard to a university or college herbarium. He believes that the botanist of the Department of Agriculture should be fitted to convey instruction to farmers concerning the functions of plants, their methods of growth, their habitats, qualities, uses, and diseases; in other words, that he should be a vegetable physiologist. He believes that a knowledge of the main principles of vegetable physiology, and of their specific relations to climates, soils, and the food of plants, especially when these relations are modified by the influences of culture, is of the highest importance to the farmer. A subject of intense interest to all fruit-growers and to all grain-growers is the diseases of plants. Immense yearly losses occur from these diseases. It is clearly within the duties of a botanist of the Department of Agriculture to investigate them—to throw some light upon their origin, modes of extension, condition of growth, &c. In developing new agricultural interests and sources of wealth, the botanist has another wide field for action. The Commissioner believes that it is his duty to point out, so far as botanical science can indicate, the natural families possessing principles or qualities useful in the arts, medicine, manufactures, &c.; that the hitherto unknown or undeveloped products of our fields and forests may be made to supply, so far as possible, the place of those gums, sugars, dyes, drugs, fibers, starches, oils, and beverages for which our people now pay enormous sums to foreign countries. Even if he goes no further than to aid in indicating what species of forest trees are adapted to rapid growth upon our western plains, and what grasses will best endure the hot suns of the South, he will accomplish far greater practical results for American farmers than he could ever achieve by the most careful nursing of a collection of dried plants. The present botanist of the Department has taken charge of its botanical work with full knowledge of the Commissioner's views, and the hope is entertained that, while not neglecting the arrangement of such specimens of plants as may be contributed to the Department, he will not disappoint the just expectations of the farmers of the country, whose interests are a thousand times more important than the gratification of the wish of any eminent scientists that the botanical division shall embrace nothing else but a collection of dried plants, and that the botanist shall spend his time in caring for it.

The *division of entomology* is in charge of an entomologist and one assistant. The scope of the division, as at present administered, is perhaps best explained in the language of the entomologist himself, in an extract from his report to the Commissioner for the year 1870, as follows:

During the past year an unusually large number of letters has been received from persons in all parts of the United States, desiring information on the natural history and habits of certain insects which have lately been found to injure various crops; desiring, at the same time, to know what remedies have been recommended to effect their destruction, or at least to diminish the losses caused by their ravages. Many new facts have been discovered within the last twelve months, by State and private entomologists, concerning the food and habits of certain insects which have hitherto been unknown. Many have been found to injure cultivated plants and trees which formerly were thought to confine themselves merely to wild vegetation and weeds.

To give publicity to these facts it will be necessary to quote extensively from Mr. Riley, of the American Entomologist and Botanist, (a valuable journal, which, unfortunately, has been suspended for one year,) Dr. Fitch, Dr. Walsh, and other standard practical entomologists, whose works the greater number of our readers may never chance to see.

The duties of the entomologist may very properly relate mainly to the communication of information to farmers and fruit-growers concerning insects injurious to vegetation. This information is largely derived from standard authorities on entomology, as above explained, and it may therefore be regarded, *prima facie*, as reliable. The entomologist is fortunate in having access to a most valuable collection of entomological works in the library of the Department for daily reference; and the country is fortunate in possessing such enterprising and reliable entomological observers as Mr. Charles V. Riley, of Saint Louis, and others, whose inquiries into the habits of injurious insects, and the best means of preventing their devastations, are eagerly sought for by all intelligent farmers in the columns of the agricultural journals, in addition to their being extensively quoted in the reports emanating from the entomological division.

It is not required of the entomologist that he shall visit the fields and orchards and there study the habits of noxious insects of which but little is known. A contrary impression has been entertained; but it is proper that the exact truth should be stated. It would seem, however, that the entomologist of the Department should frequently verify, by personal observation in the field and orchard, the correctness of the theories and suggestions of other entomologists, and there aid them in devising remedies against insect ravages. As an illustration of the assumed propriety of this innovation, it may be stated that the habits of the dreaded Colorado potato-bug are everywhere imperfectly understood, and that many thousands of dollars will be lost this year by the farmers because no effectual method of preventing its ravages has yet been discovered. Many State governments have employed entomologists to aid the farmers in their warfare against noxious insects, and in this great work, which requires that the broad country be frequently visited, the entomological division of the Department of Agriculture might, sometimes, without presumption, take the lead.

The *museum* of the Department occupies the whole of a large hall on the second floor—102 feet long, 52 feet wide, and 27 feet high. The hall is finished in superior style, and is furnished with elegant glass cases with walnut frames. One piece of furniture is unique and worthy of special mention. It is a table, the top of which is made from one piece of redwood, 12 feet long, and 7½ feet wide, taken from a California tree. The museum is not strictly an agricultural museum, although it ought to be. In its cases may be found many specimens which have no relation whatever to agriculture, but these will doubtless be displaced in time by agricultural products. Among such products now represented in the museum may be mentioned cotton, wool, flax, silk, jute, ramie, and other fibers; samples of wheat, barley, oats, and other cereals from various foreign countries, and of the same grains, Indian corn, and tobacco from our own country; paper from various products, and in great variety, including Chinese and Japanese papers; honey; sorghum, maple, cane, and beet-root sugars; sirups; domestic fowls; &c., &c. A leading feature of the museum is its department of modeled fruits and vegetables, embracing *fac-simile* representations of the various apples, peaches, pears, plums, cherries, potatoes, pumpkins, &c., of the United States, so arranged as to exhibit their adaptation to the various soils and climates of the country, informing the inquirer what fruits and vegetables he may profitably adopt for his own purposes. Agricultural implements are not represented. There is not an improved plow, a corn-cultivator, a corn-sheller, a corn-planter, a good fanning-mill, or the model of a mower, a reaper, or a thresher, to be shown to the visitor from other lands, or to the slow-going farmer from a district of our own country into which the methods of progressive agriculture have never been introduced. Nor is there a plow of the days of Thomas Jefferson or Jethro Wood, a spinning-wheel such as all the grandmothers of the present generation were familiar with, or a sickle, or a flail, to remind the visitor of the difficulties with which those now passed away had to contend, and to suggest to him the great debt due by the American farmer to the inventive genius and the mechanical skill of his countrymen. Notwithstanding these noticeable omissions, the museum has many attractive and valuable features, and should be seen by all visitors to the seat of government.

The contents of the museum have been mainly given to the Department, but the preparation of many of the specimens and the care of the whole collection annually require the attention of several persons. The museum is in charge of the entomologist. A taxidermist, and a modeler of fruits and vegetables, are among his assistants.

The *library* of the Department now contains about eight thousand volumes, and is the most complete agricultural library in the country. It comprises nearly all the standard works on agriculture and the kindred sciences of botany, geology, meteorology, entomology, &c. It is particularly rich in rare and costly works on entomology and natural history, including the transactions of the Linnæan Society of London, in forty volumes. It also contains nearly complete sets of the annual reports of all the State boards of agriculture and State agricultural, horticultural, and pomological societies, some of which are of great interest and value. Persons unfamiliar with the subject would be astonished to learn how freshly, vigorously, and thoroughly all the living, urgent questions in American agriculture are treated in these reports. Most of the books on the shelves of the library were purchased with a small annual appropriation by Congress, but many volumes have been obtained from foreign governments and societies in exchange for the reports of the Department. The reports of the transactions of the leading agricultural and scientific associations of England, France, Germany, and Italy are regularly received. One of the most attractive features of the library is a series of elegant folios, some of which are illustrated with costly designs of flowers and vegetables, while others contain superbly arranged specimens of the various grasses, transfers of ferns, &c.

The apartment appropriated to the library occupies the entire western end of the first floor of the Department building, and is tastefully and richly furnished with mahogany cases having glass doors, a large mahogany center-table, ornamental iron railings, &c. The librarian will soon complete a catalogue, by subjects, of the books in the library, which will be printed. These books are systematically arranged in appropriate divisions. The clerks of the Department and many visitors daily consult them, but it is to be regretted that the Department makes so little use of the valuable foreign reports and periodicals of which the library is in daily receipt. The present librarian is a gentleman of literary culture, a qualification every way as essential in his position as in any similar position in the country.

Strictly speaking, no *division of correspondence, records, and accounts* exists, but it would be in accordance with a methodical and business-like distribution of labor and responsibility if such a division were created. The miscellaneous work of the Department which should be embraced in this division comprises the keeping of its financial, printing, and stationery accounts; correspondence with farmers' clubs, and the keeping of a correct record of these clubs; foreign correspondence, and correspondence relative to the purchase of seeds; correspondence relative to applications for seeds, reports, and information of a special character; copying letters and manuscripts; &c. The correspondence of the Department is of the greatest importance. It should be well done, and, that this result may be attained, careful, intelligent, and conscientious supervision is absolutely necessary. Especially is it requisite that letters of inquiry concerning methods of culture, the improvement of crops, the introduction of new seeds and plants, drainage, the reclamation of waste lands, insect ravages, and other subjects of importance to the writers and having relation to agriculture, should be promptly, clearly, and fully answered, and in an artistic manner. The Department should be an intelligence-office for all farmers, and it should have intelligent clerks to communicate what it knows.

The *distribution of documents* is performed by a superintendent of the folding-room and one assistant.

The entire working force of the Department consists of about fifty clerks and specialists, and fifty messengers, laborers, and other employés. The total appropriation for the support of the Department during the present financial year was $197,070, including the purchase of seeds and improvement of the grounds.